NRI Photography Report

Dorsey Plunk
National Cartography and Geospatial Center
Fort Worth, Texas

General Photo Specifications

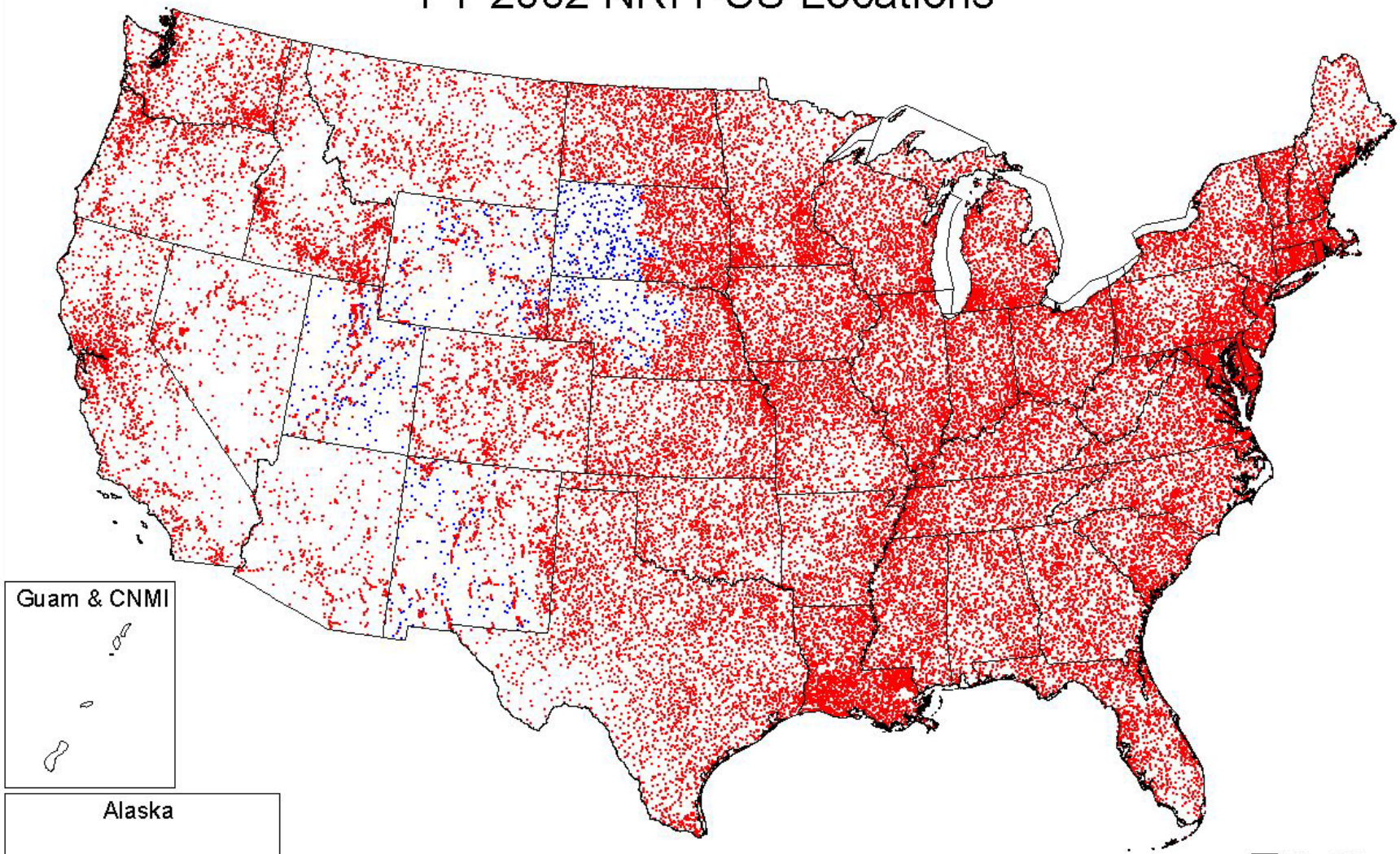
- Natural color film positive
- Mapping camera
- 6” focal length lens
- 500 acres or less (1:7,920) 3,960’ AGL
- More than 500 acres (1:12,000) 6,000’ AGL (1,161 in 2002)

- 49,969 PSUs
- CONUS only
- No core urban, federal, or water
- No clouds, snow, or flooding

U.S. Department of Agriculture

Natural Resources Conservation Service

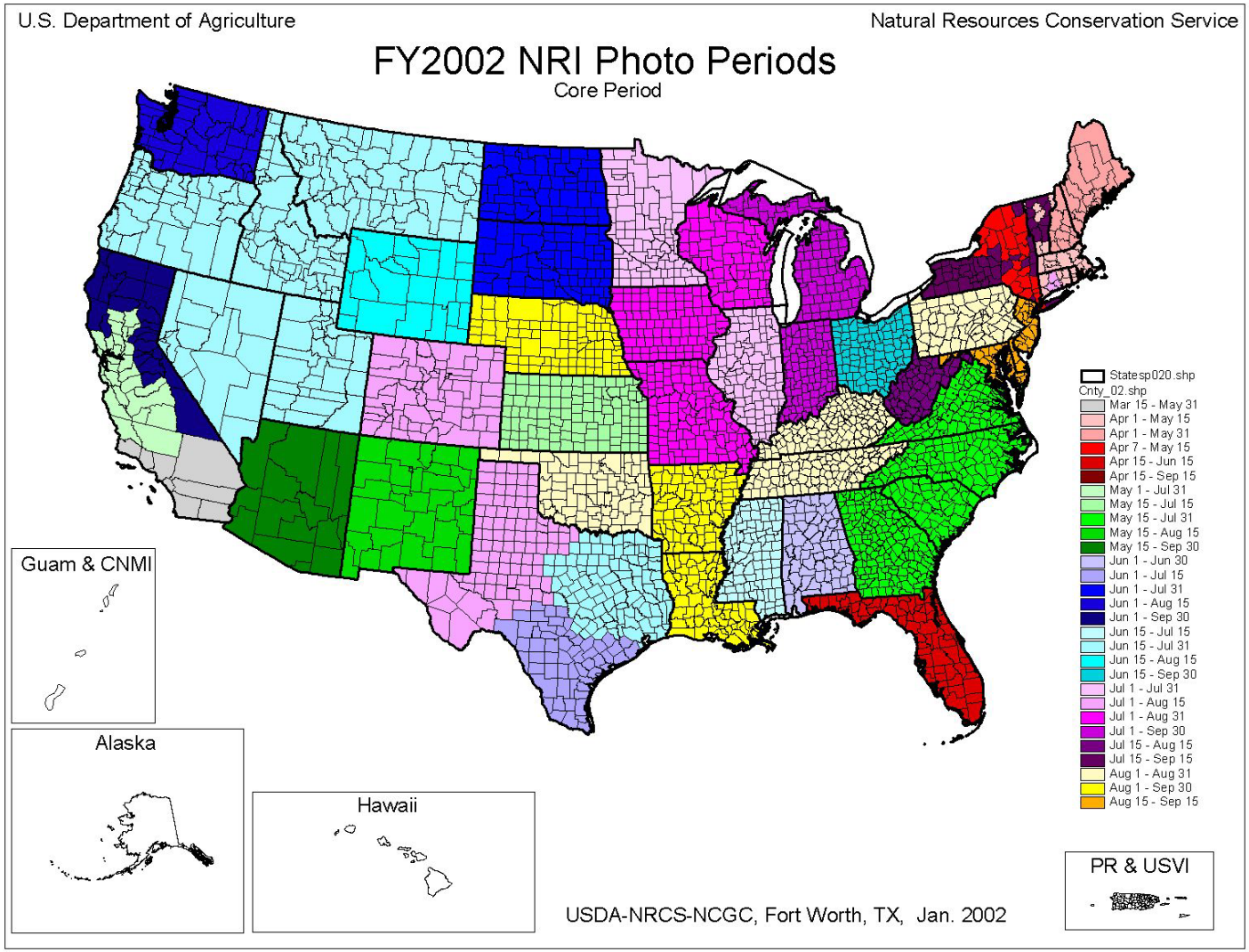
FY 2002 NRI PSU Locations



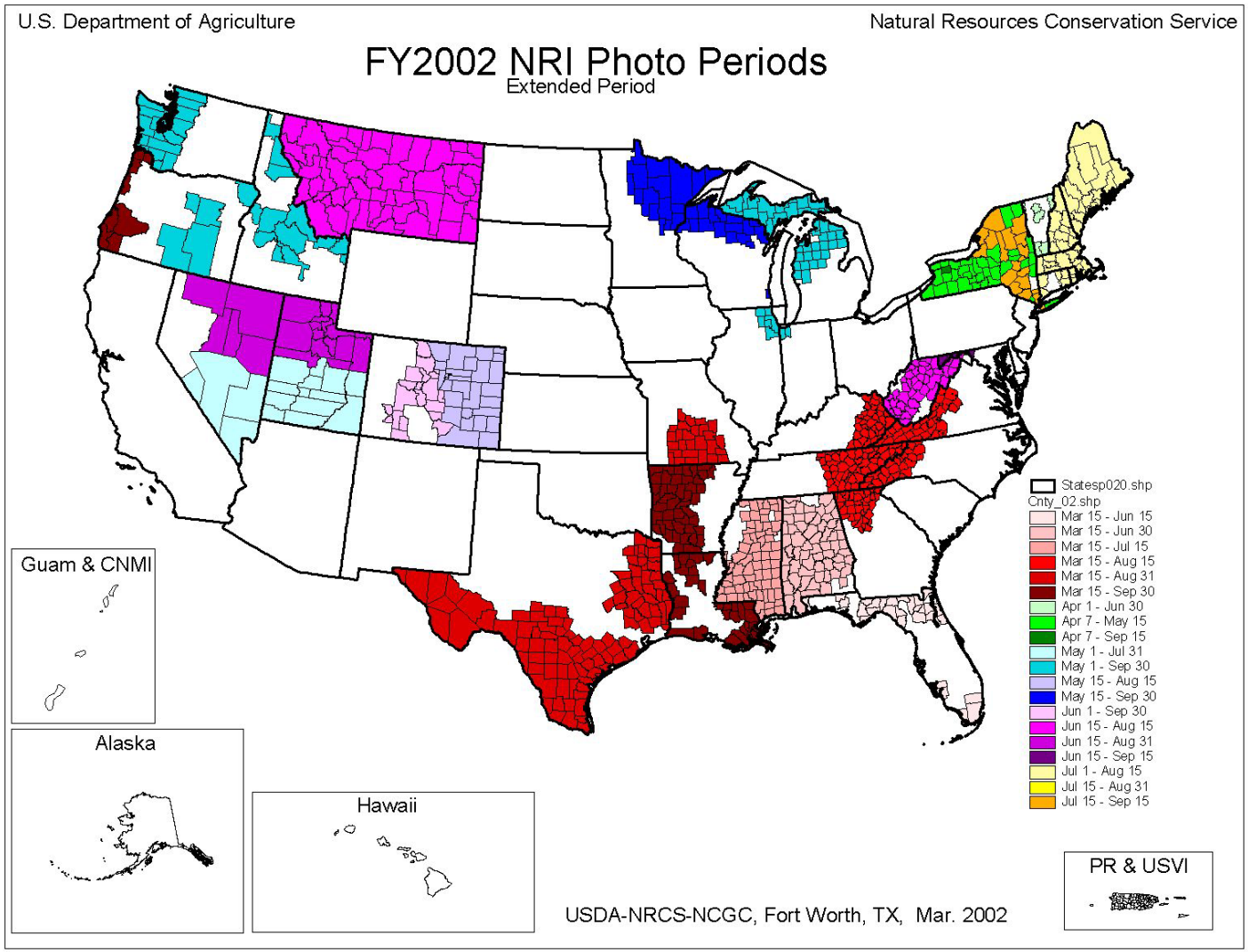
Blue = PSUs larger than 500 acres

USDA-NRCS-NCGC, Fort Worth, TX, Mar. 2002

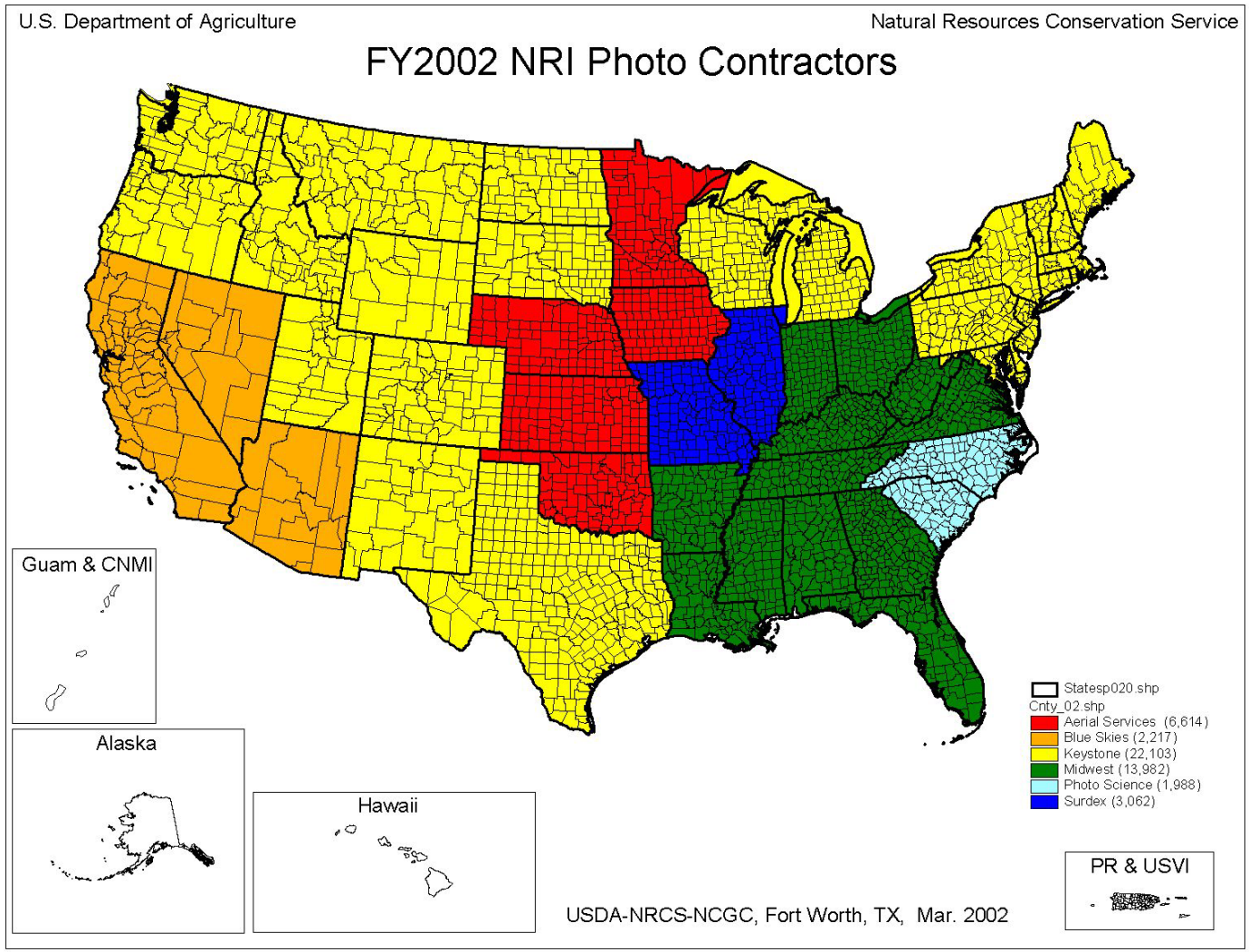
Core Photographic Periods



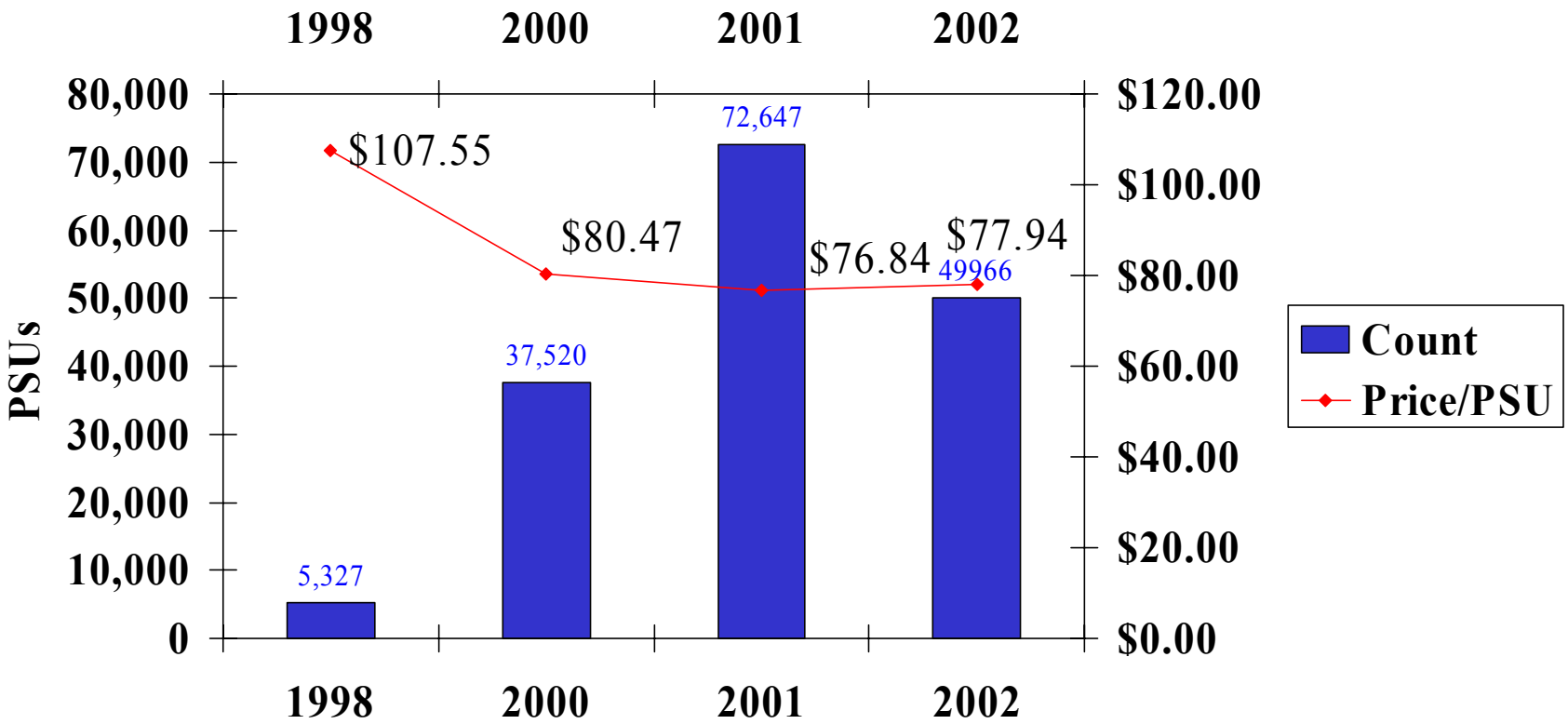
Extended Photographic Periods



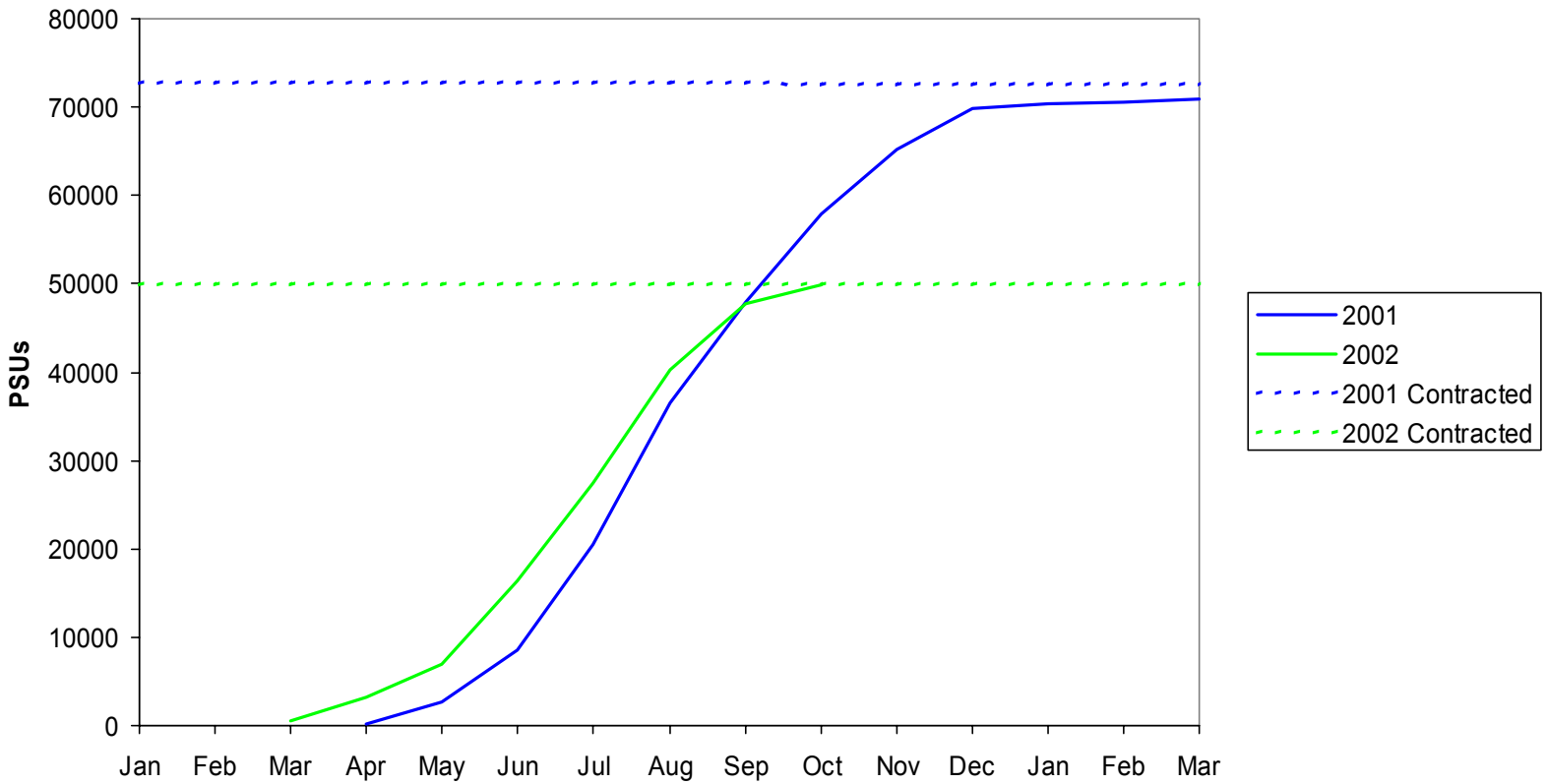
FY2002 Contractors



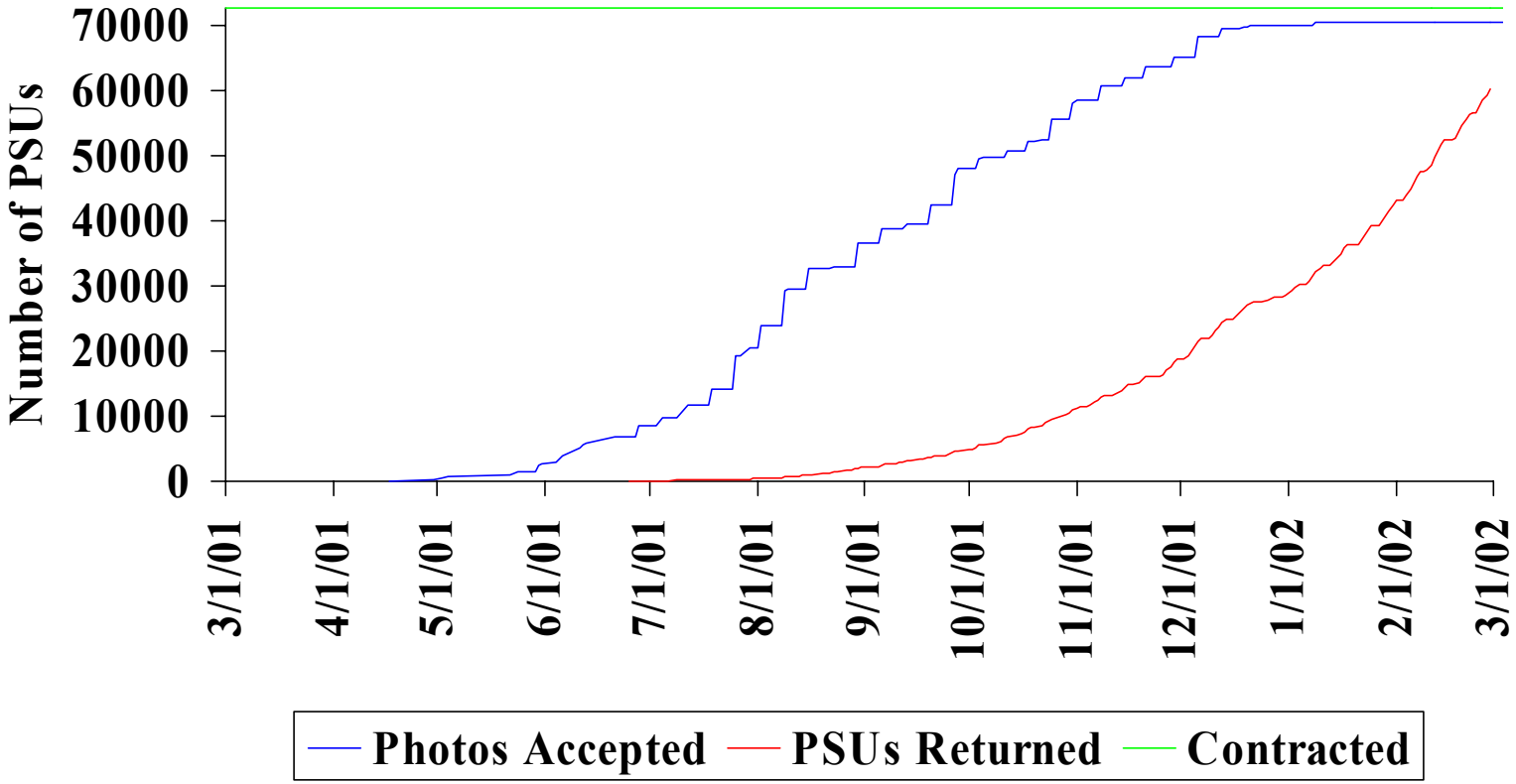
Count & Prices 1998-2002



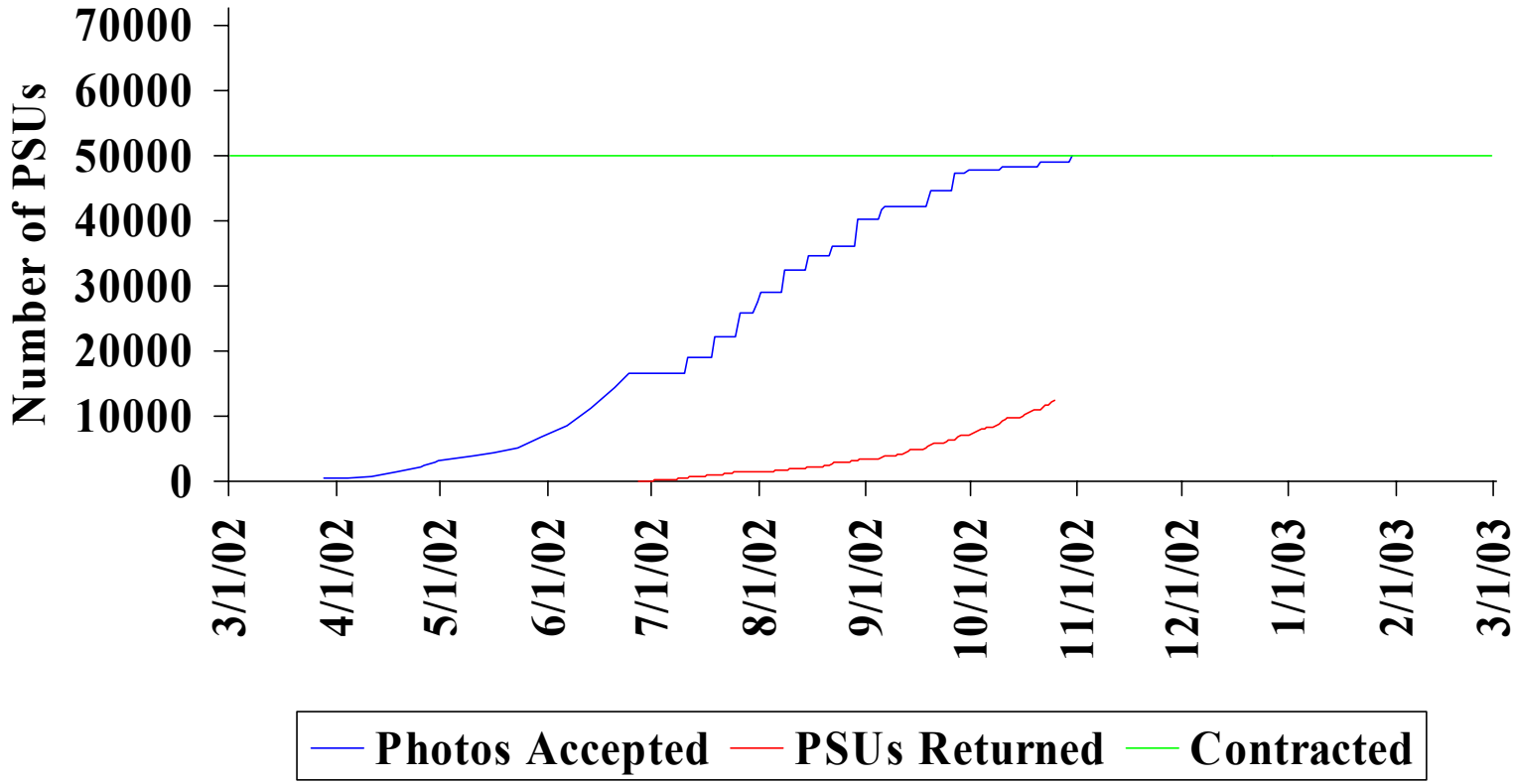
NRI Photo Deliveries
2001 and 2002



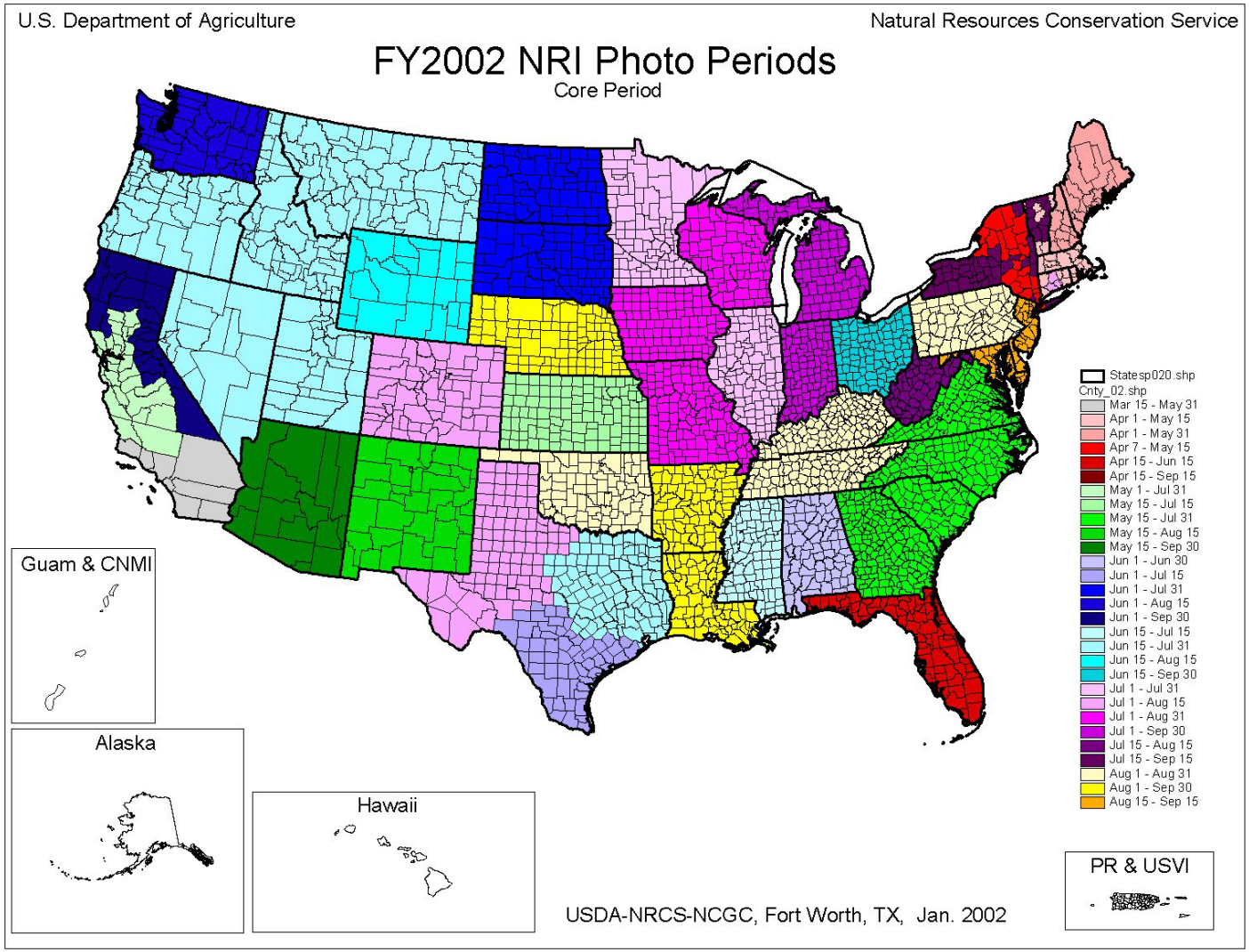
Photos vs. Data Collection 2001



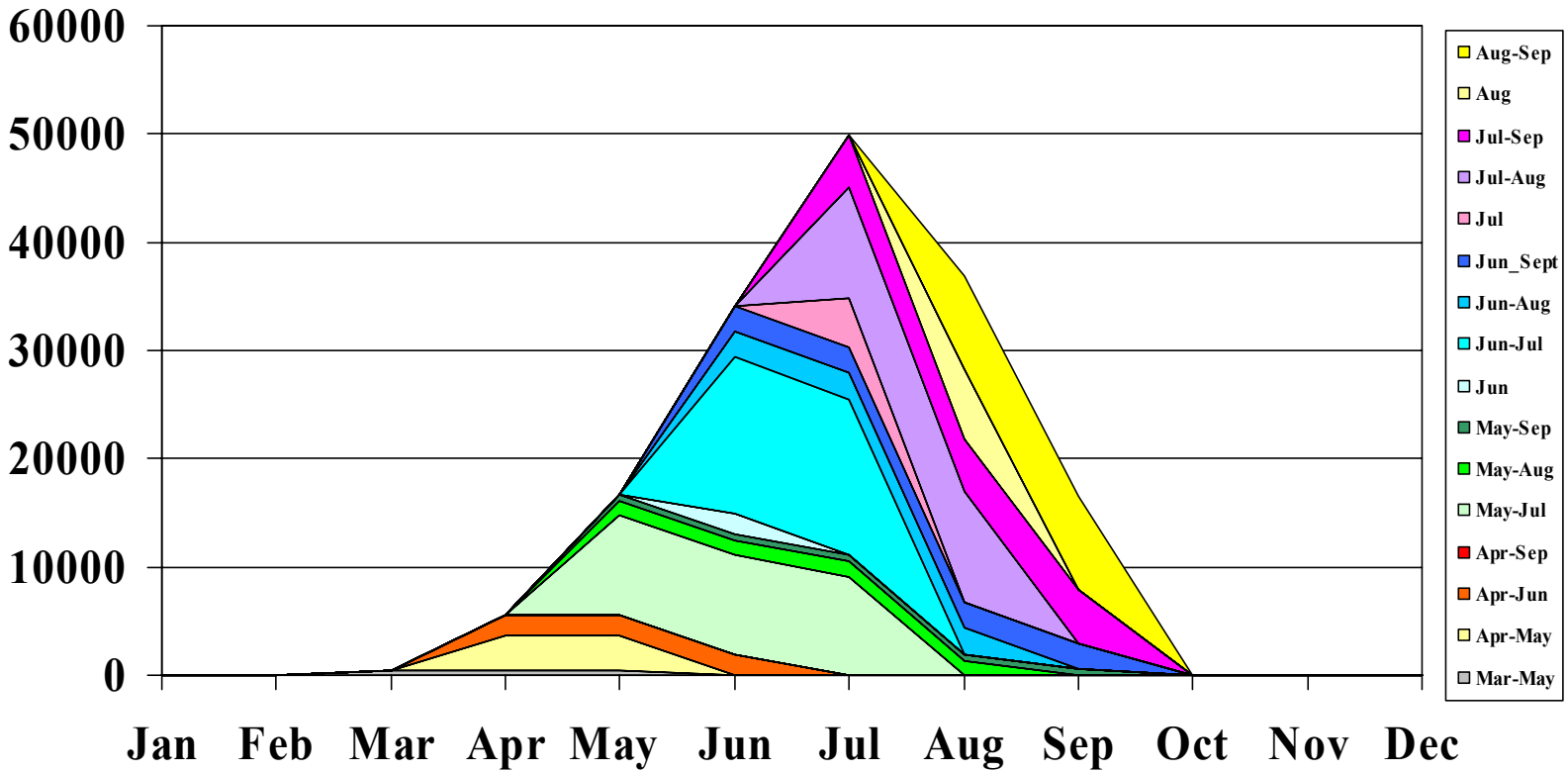
Photos vs. Data Collection 2002



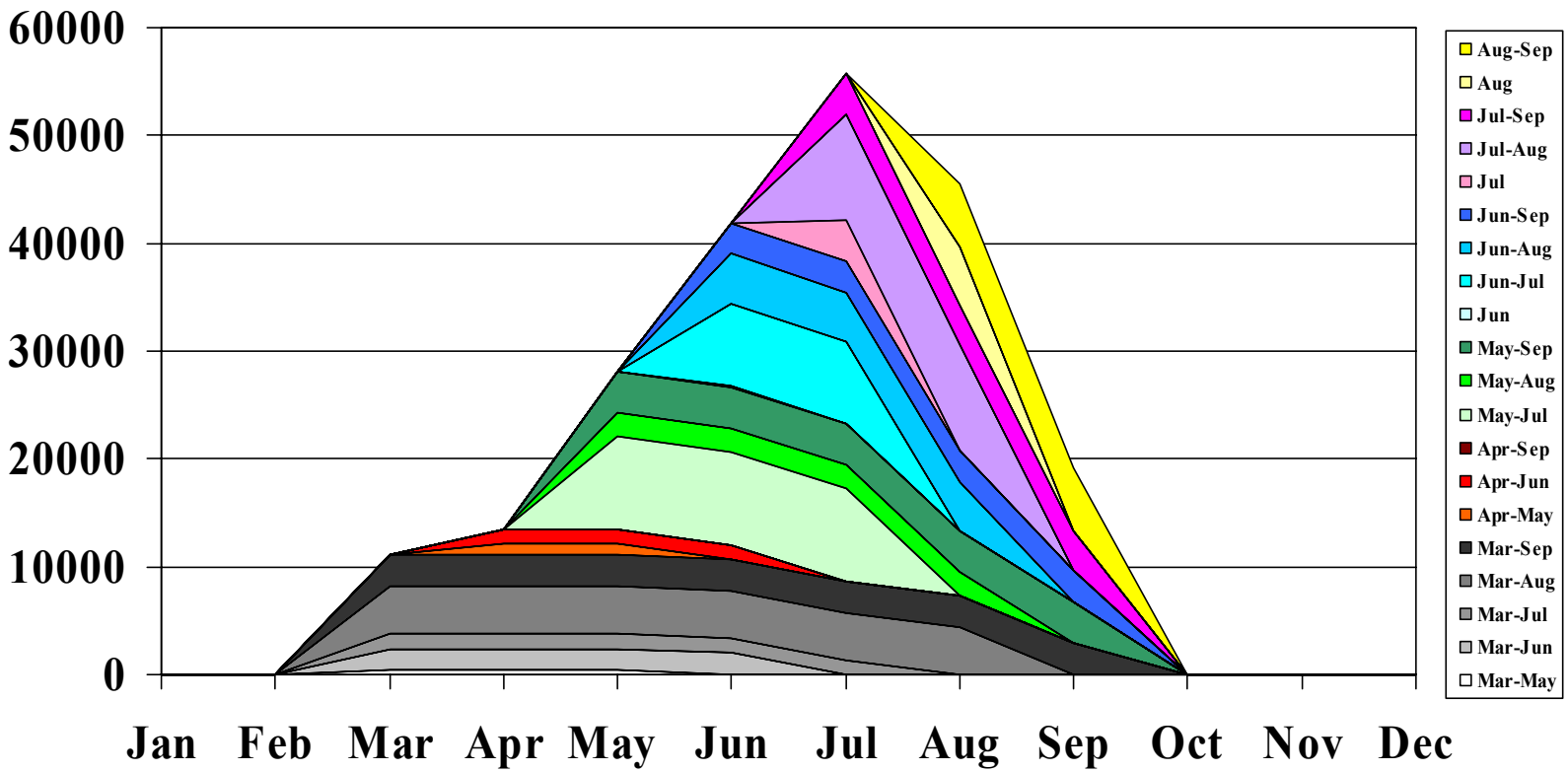
Core Photographic Periods



2002 ICCS National Core Photo Period Counts



2002 ICCS National Core Photo Period Counts With Extended



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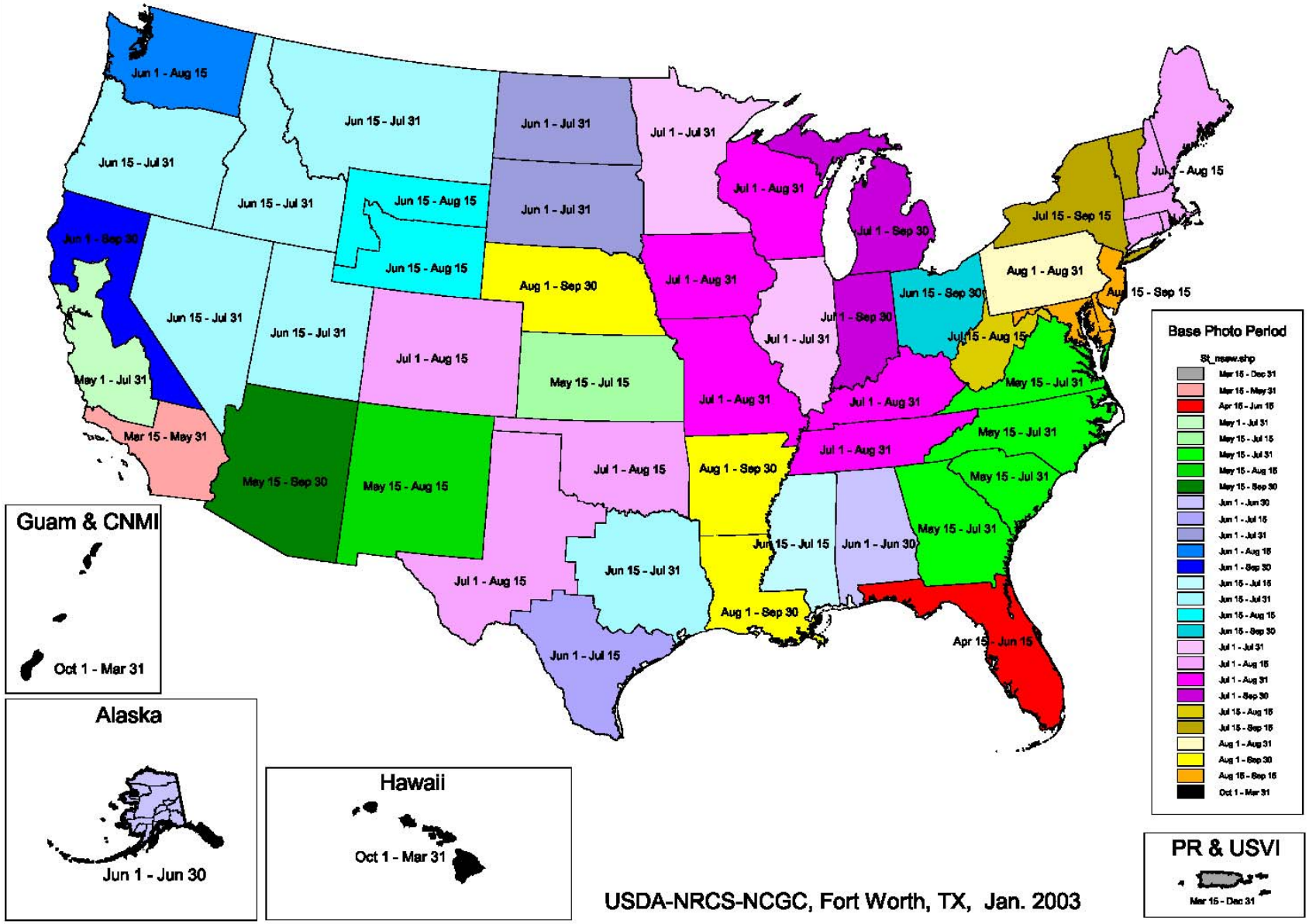
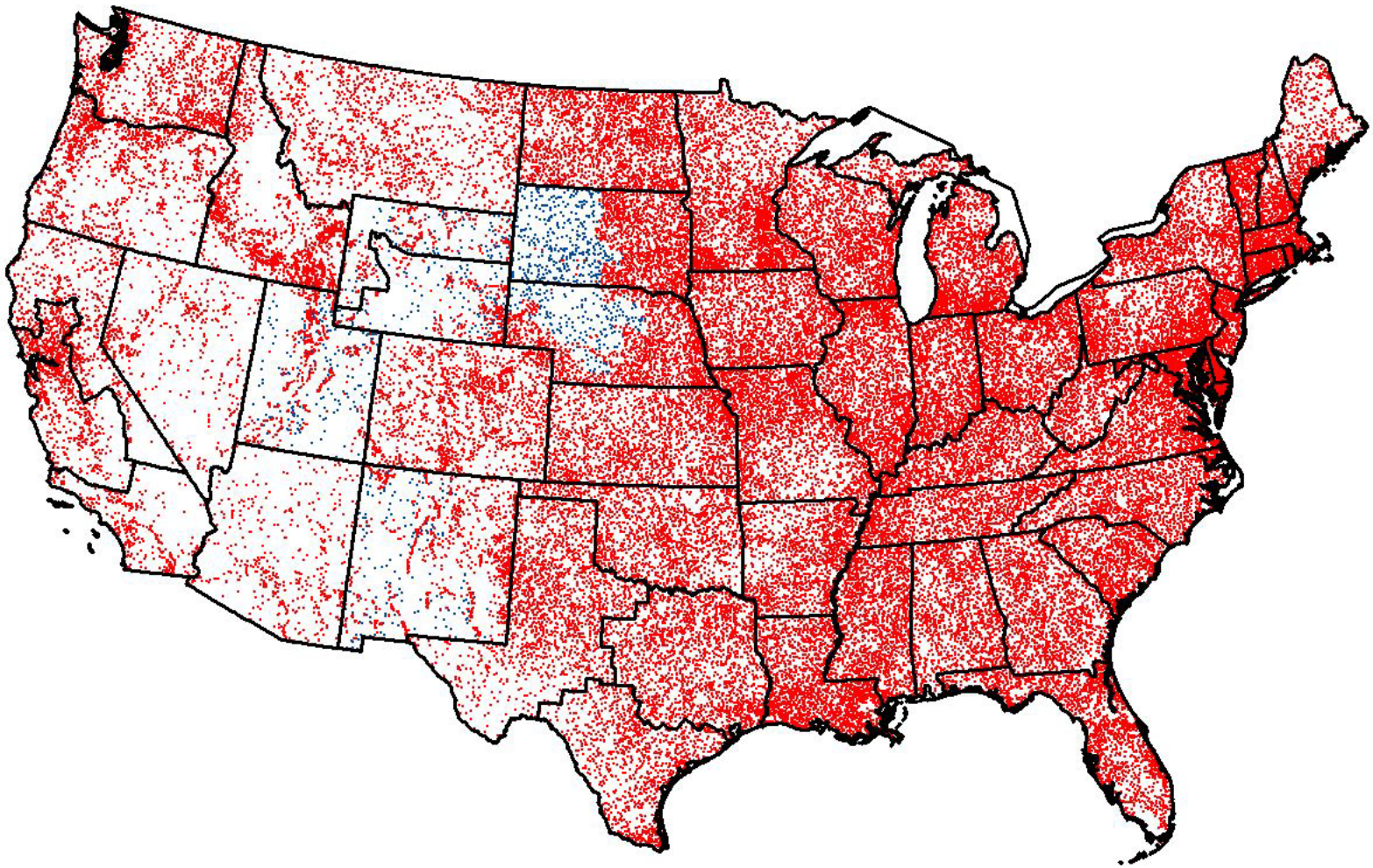
FY 2003 NRI Base Photo Periods



USDA-NRCS-NCGC, Fort Worth, TX, Jan. 2003

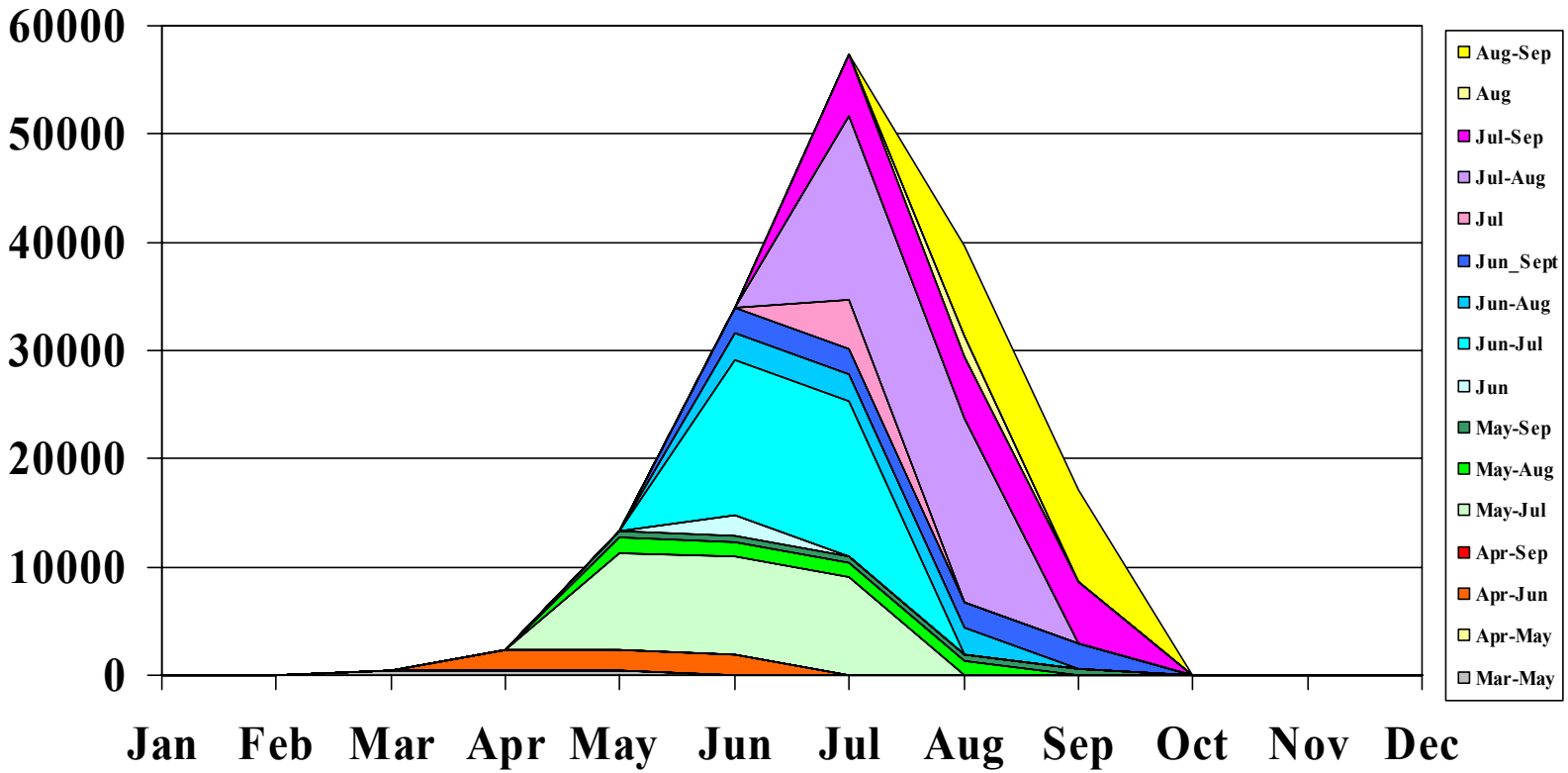
FY 2003 PSU Locations



USDA Natural Resources Conservation Service

NCGC Fort Worth, Texas, Jan. 2003

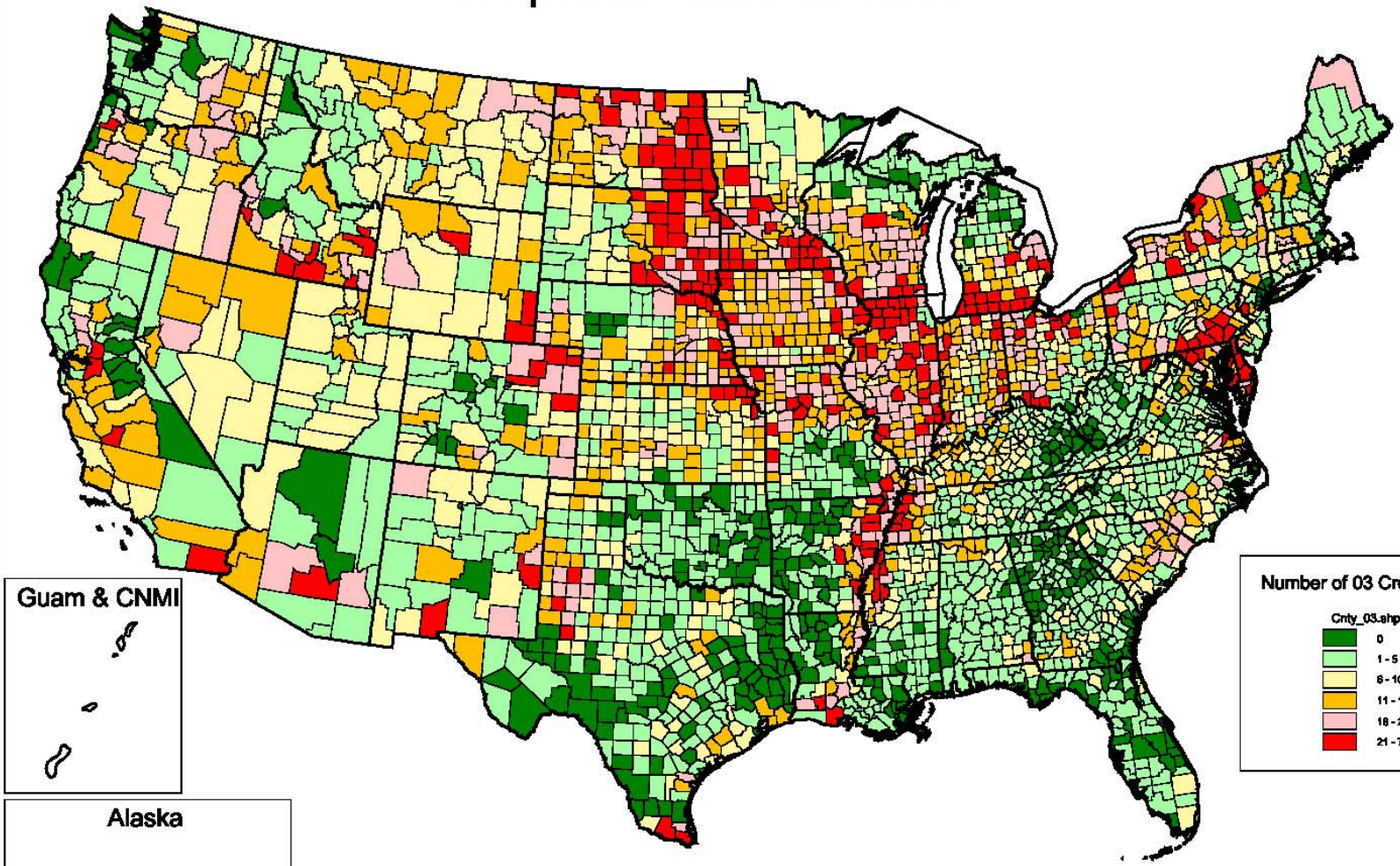
2003 ICCS National Core Photo Period Counts



U.S. Department of Agriculture

Natural Resources Conservation Service

Cropland PSUs for 2003



Guam & CNMI

Alaska

Hawaii

Number of 03 Crop PSUs

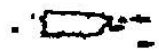
Cnty_03.shp

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 71

This map shows the number of cropland PSUs by county for the 2003 sample. The map is based on the most recent Stat Lab data for those PSUs.

USDA-NRCS-NCGC, Fort Worth, TX, Nov. 2002

PR & USVI



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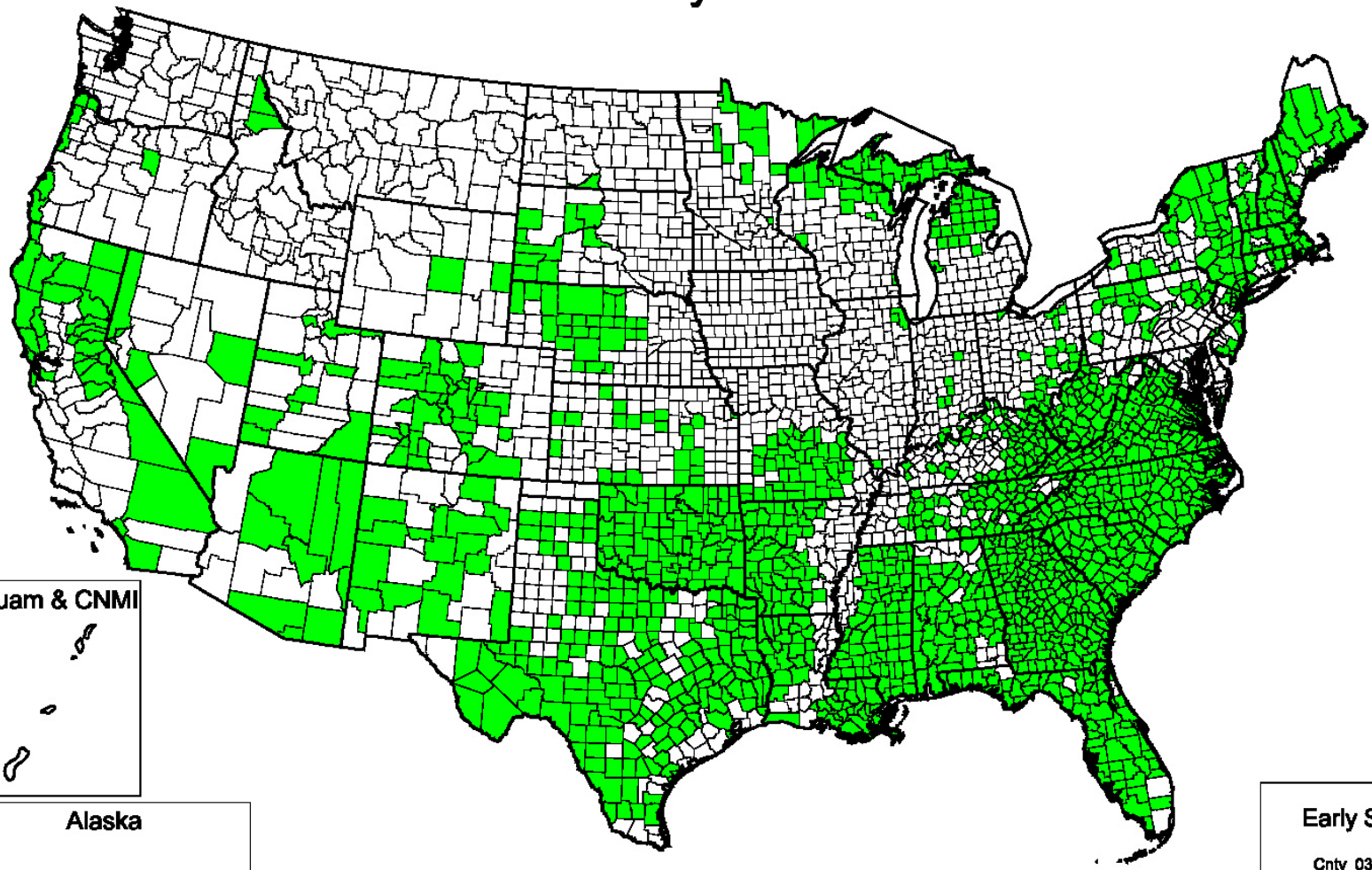
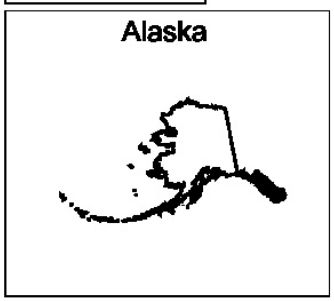
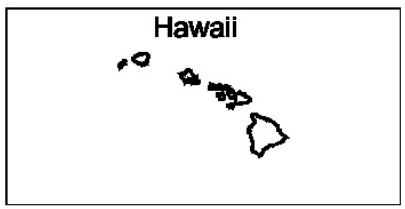
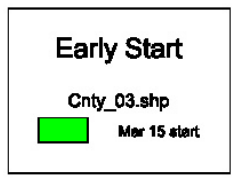
Natural Resources Conservation Service

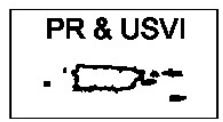
FY 2003 NRI Early Start Counties







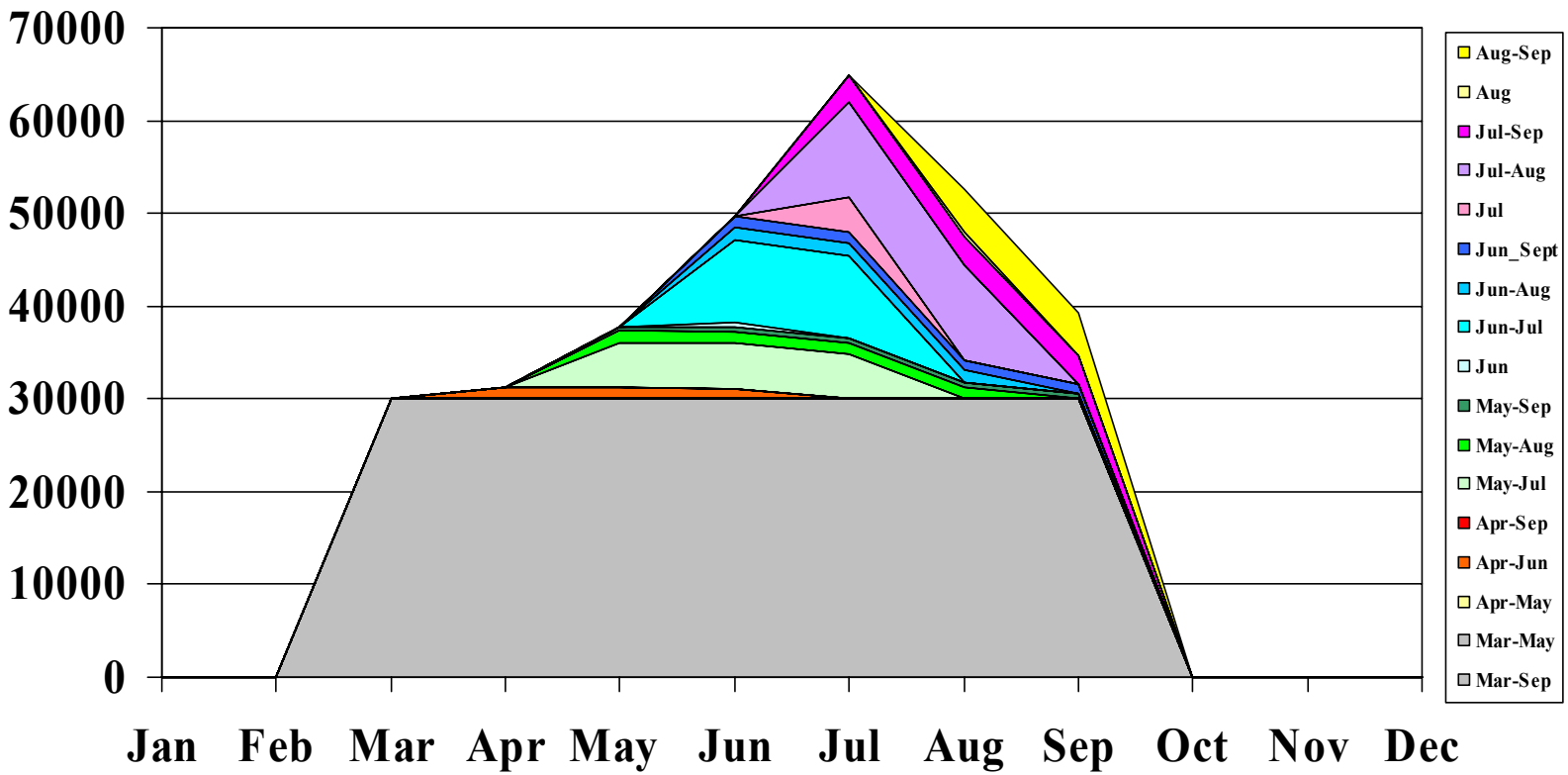




In early start counties flying can begin March 15 provided the ground is free of snow. The flying season ends when the base photo period ends.

USDA-NRCS-NCGC, Fort Worth, TX, Dec. 2002

2003 ICCS National Core Photo Period Counts



Need For Additional High Resolution Photography

- **High quality photography, imagery, and automated data collection for the NRI have:**
  - Improved staff efficiencies
  - Improved productivity
  - Improved quality
  - Reduced costs
- **It is believed the same techniques can be used in other conservation programs.**

Other NRCS Programs That Use or Could Benefit from Remote Sensing

- **Wetlands Reserve Program (WRP)**
- **Wildlife Habitat Incentive Program (WHIP)**
- **Wetland Conservation Compliance**
- **Conservation Reserve Program (CRP)**
- **Grassland Reserve Program (GRP)**
- **Performance Reporting Management Survey (PRMS)**
- **Conservation Reserve Enhancement**
- **Conservation Technical Assistance (CTA)**
- **Resource Conservation and Development (RC&D)**
- **Environmental Quality Incentives Program (EQIP)**
- **Farmland Protection Program**
- **Emergency Watershed Protection**
- **Soil Surveys**
- **Snow Survey and Water Forecasting**

Review of Active Contracts

- **Onsite review of 5 – 100% of contracts depending on program.**
- **Estimated annual workload 600 staff years.**
- **Except for WRP, reviews are treated as unfunded mandates.**
- **Potential review workload associated with the 1996 and 2002 Farm Bills is expected to overwhelm field employees without some process changes.**

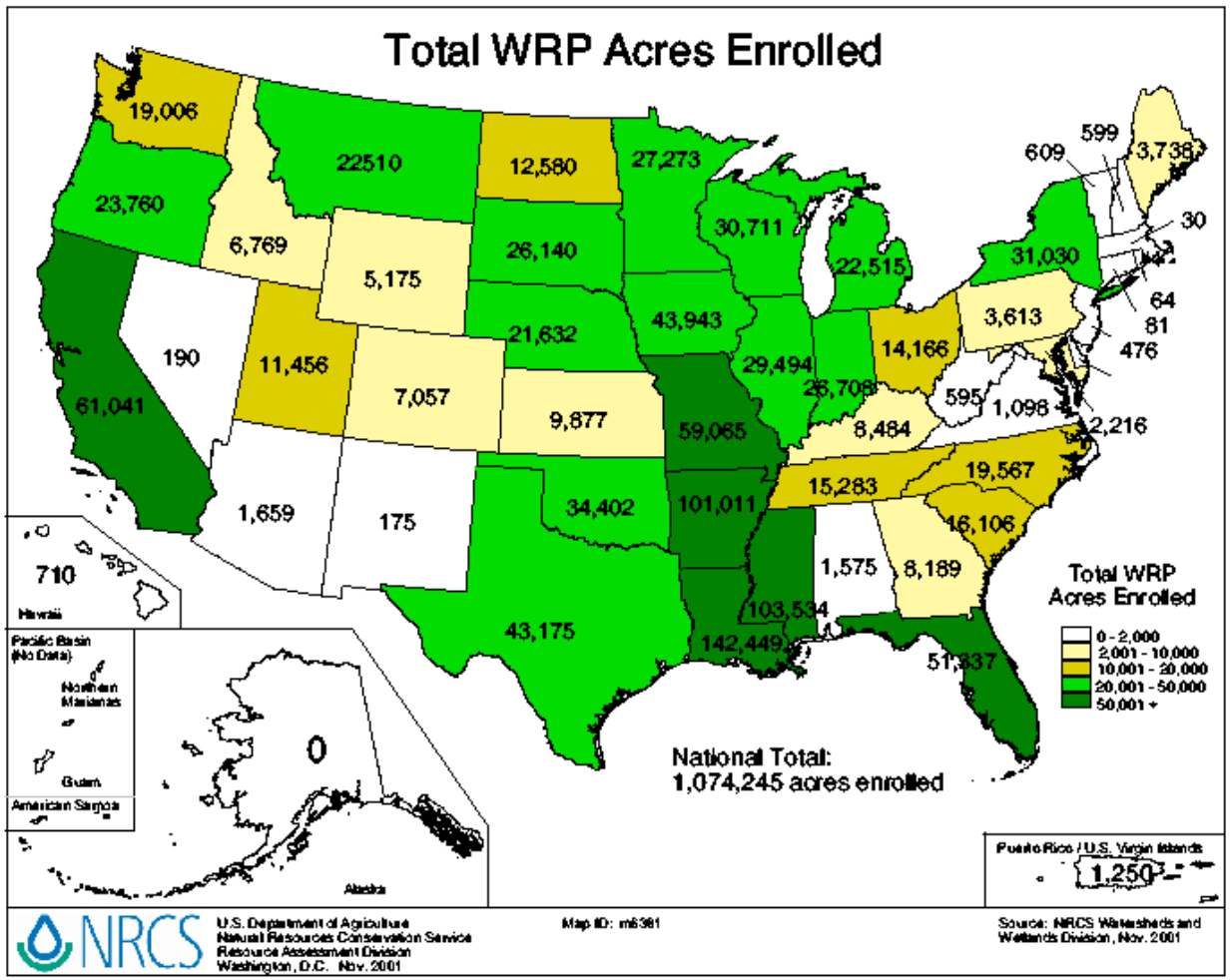
WRP Contracts

- **All WRP projects must be reviewed annually**
- **Onsite inspections every third year**
  - Walking the boundary
  - Monitoring the effectiveness of restoration
  - Detecting easement violations
    - Mowing/haying
    - Discing
    - Grazing
    - Dewatering of impoundments too early
    - Burning
    - Food plot expansion or creation
    - Dumping
    - Timber harvest
    - Pumping water
    - Growing crops on the easement
    - Improvement/creation of access roads.

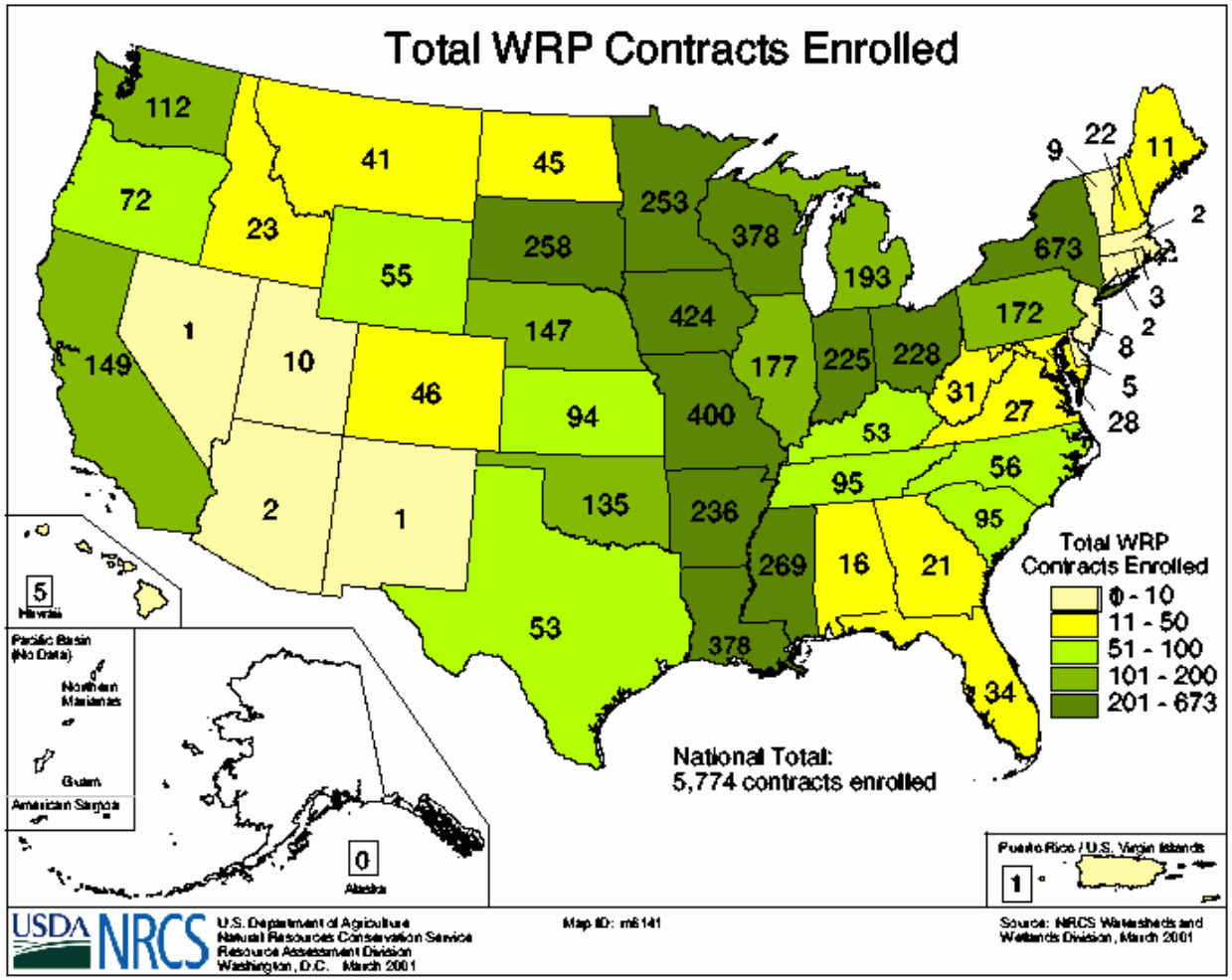
- **Problems**
  - Size of the project
  - Location
  - Accessibility
  - Time

3900 ac project in Monroe Co., Arkansas

WRP Acres Enrolled



WRP Contracts



Pilot Test Recommendations

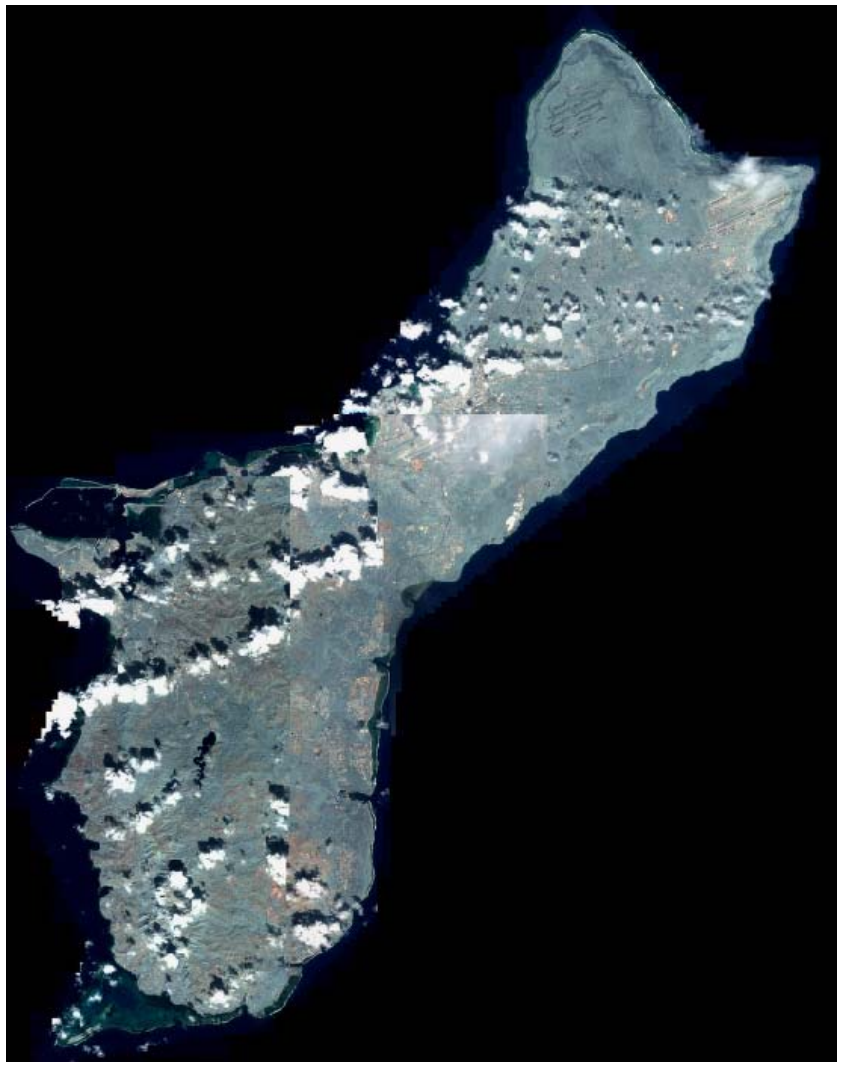
- **FY2003, test remote sensing monitoring of WRP and WHIP in WA, MN, WI, KS, AR, LA, IA, and MO.**
- **WRP and WHIP sites are digitized.**
- **Contract for NRI-like photography over WRP sites (474 photos) and use NRI photography for WHIP sites that fall on PSUs.**
- **Acquire Landsat and other aerial imagery for evaluation.**

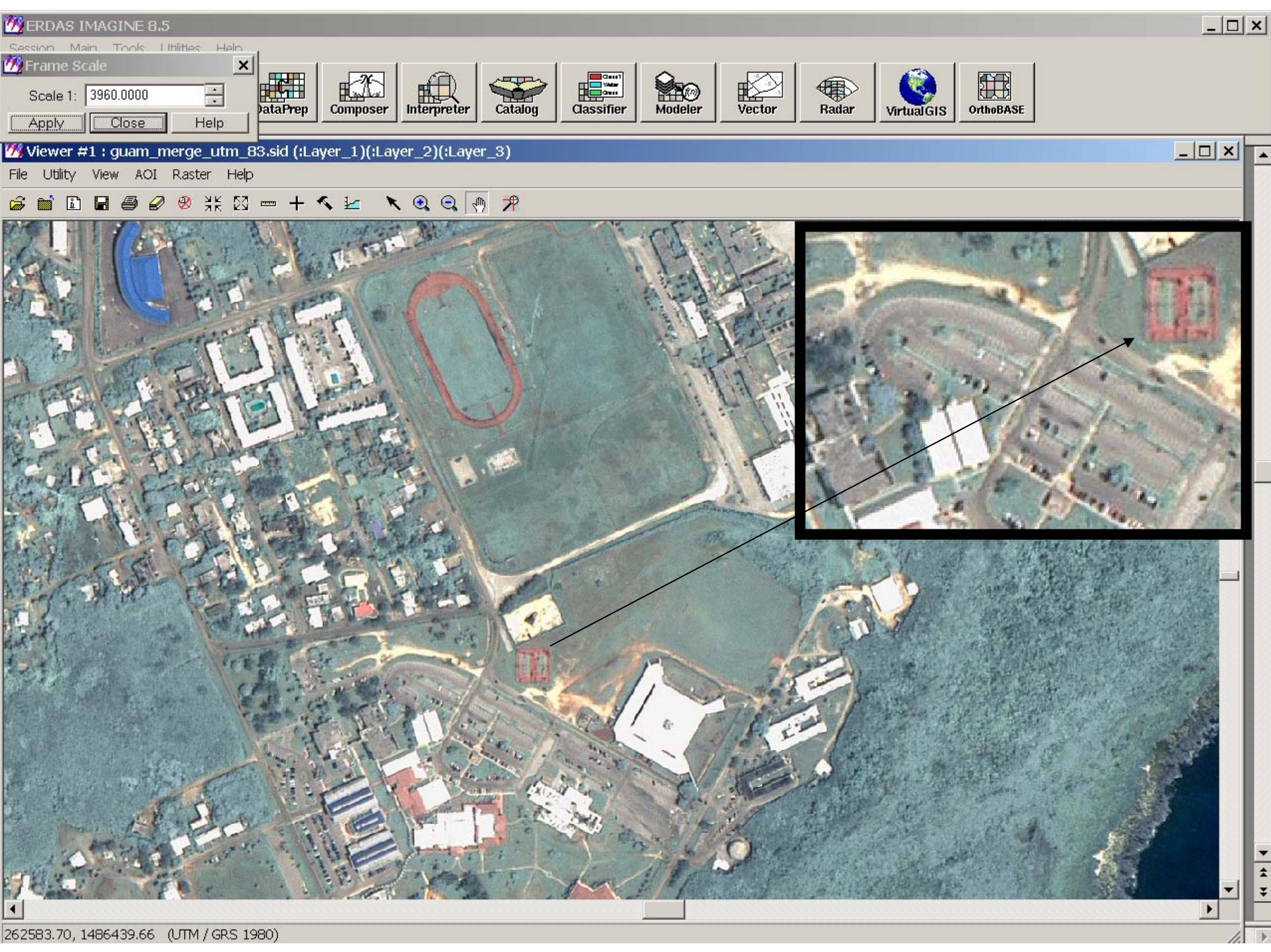
Outcomes

- **Replace need for onsite?**
- **Effective screening tool?**
- **Reduce workload?**
- **Cost effective (labor and photography contract)?**
- **Improvement in quality of data collected?**
- **Base for future monitoring or documentation of violations?**
- **Centralized data collection without local knowledge?**
- **Expanded role for ICCS locations?**
- **Evaluate other imagery types and sources.**

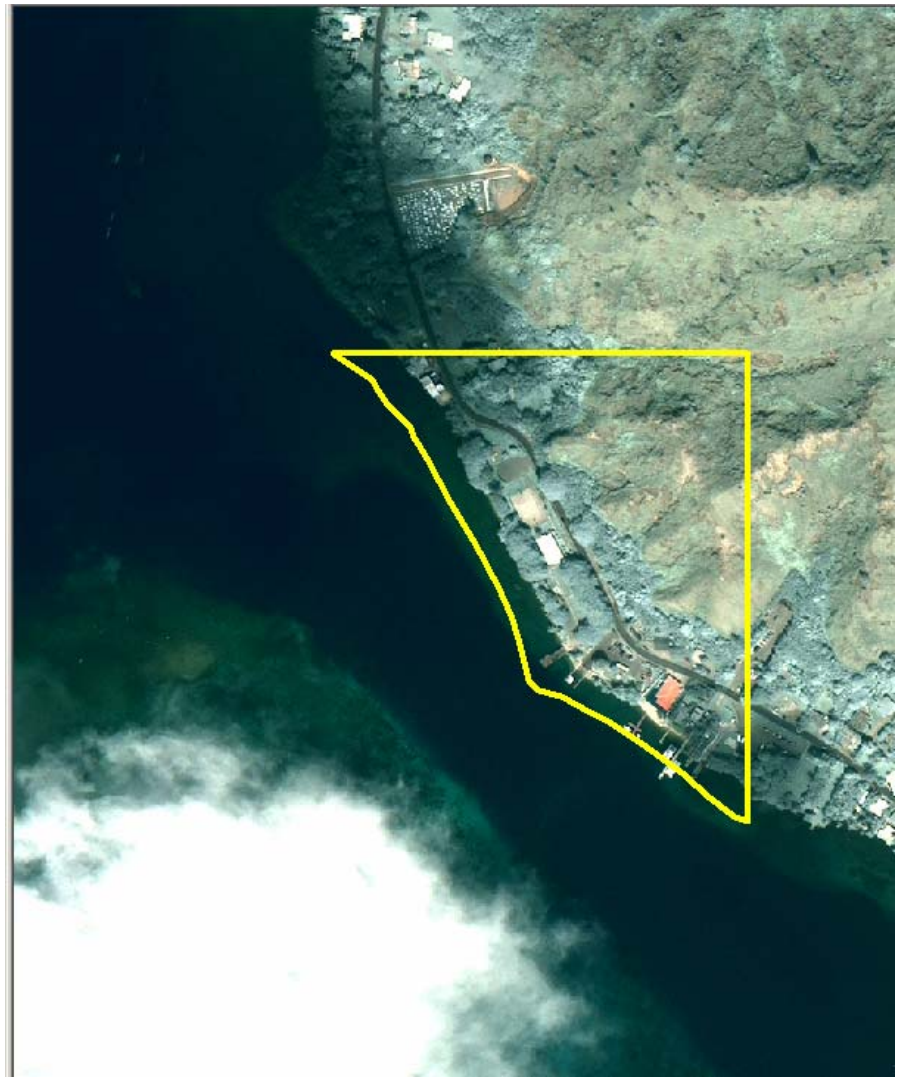
Satellite Imagery for NRI

- Currently being used for Guam, Rota, Tinian, and Saipan
- Problems include
  - Clouds
  - Geo and orthorectification
  - Digital image processing
    - Mosaicking
    - Resolution merge
- Minimum purchases
  - Ikonos $350 (50 km^2)
  - QuickBird $337.50 (25 km^2)




ERDAS IMAGINE 8.5
Session Main Tools Utilities Help
Frame Scale
Scale 1: 3960.0000
Apply
Close
Help
DataPrep
Composer
Interpreter
Catalog
Classifier
Modeler
Vector
Radar
VirtualGIS
OrthoBASE
Viewer #1 : guam_merge_utm_83.sid (:Layer_1)(:Layer_2)(:Layer_3)
File Utility View AOI Raster Help
262583.70, 1486439.66 (UTM / GRS 1980)

PSUs Fit DRG but Not Ikonos



ERDAS & Scanner Purchases

ICCS Location	Contact Person	Advantage	OrthoBase	Microtek 9600
Auburn, AL	Herbert Ross	2	2	0
Little Rock, AR	Marcella Callahan	1	2	1
Phoenix, AZ	Jamie Gillum	1	1	0
Lakewood, CO	Kelly Pace	2	2	0
Boise, ID	Hal Swenson	1	1	1
Ames, IA	Cory Brockman	1	1	1
Salina, KS	Larry Kuder	1	1	0
Lexington, KY	Bill Craddock (2 KY & 2 TN)	4	4	0
Amherst, MA	John Kick	1	1	1
East Lansing, MI	William Bowman	1	1	1
Bozeman, MT	Doug Harrison	1	2	1
Reno, NV	Bill Daily	1	1	0
Bismarck, ND	Karen Stroh	1	1	0
Columbus, OH	Bob Parkinson	2	0	0
Temple, TX	Micki Yoder	1	1	1
Morgantown, WV	Timothy Prescott	1	1	0
Madison, WI	Lori Chavez			1
Total		22	22	8

ERDAS®

List prices: Advantage = $4,000, OrthoBase = $5,000
GSA prices: 50% off list for 11+ licenses
Total list: $198,000
NRCS cost: $99,000

List price: $1,500
GSA price: $999.00
Total list: $12,000
NRCS cost: $7,992

Black = RID, Green = State, Blue = both

ERDAS Training

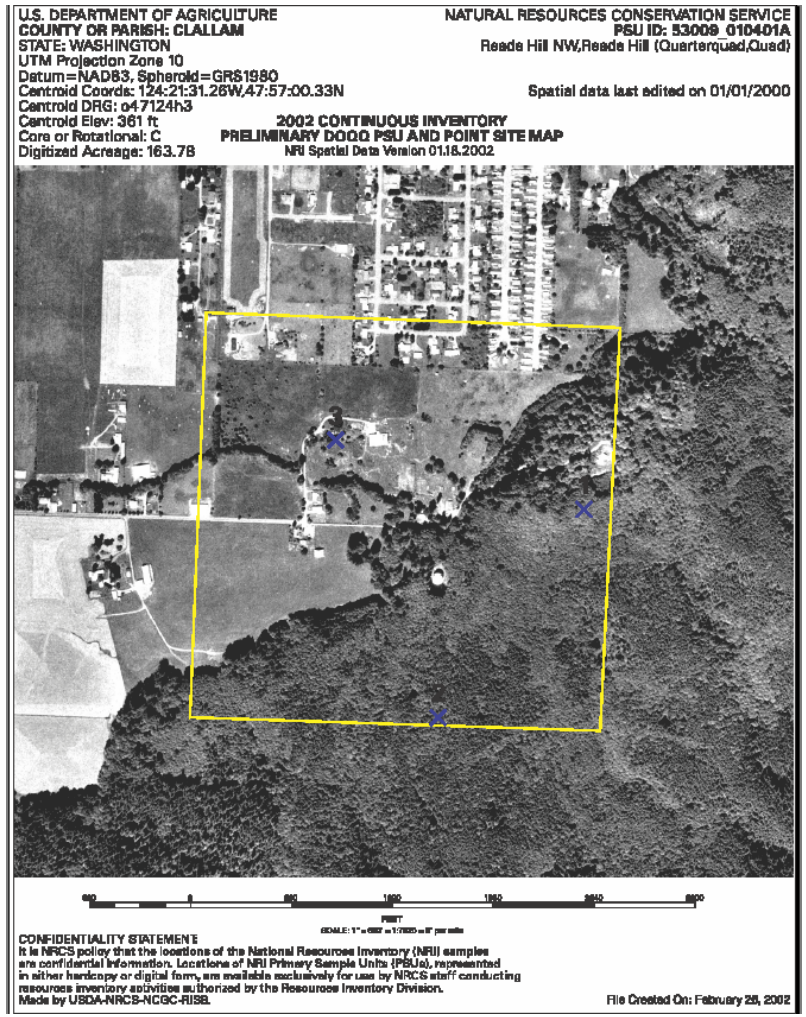
- July 18-20, 2002 NCGC, Fort Worth
- Taught by Spokane ICCS
- 20 students
- 15 ICCSs represented
- Scanning using Microtek 9600
- Overview of Imagine
- Instruction on OrthoBase and MrSID
- Used demo licenses (one time only 30 day license)
- Future training?
  - Purchase 16 copies of Image, OrthoBase, and MrSID (est. cost $112,000)
  - Contract with ERDAS
    - 8 day onsite course for 16 students ($14,645)
    - $915 per student

Ortho Server Status

- All 17,217 DOQQ CDs at NCGC loaded
- Problem files being pulled and reloaded
- Vintage files being moved so only latest imagery is visible
- Gaps slowly being filled as new data arrives
- QA is ongoing, but it will take several months to fix all problem areas
- Only after problems are fixed will the server be advertised.

PSU Centered DOQQ Clips

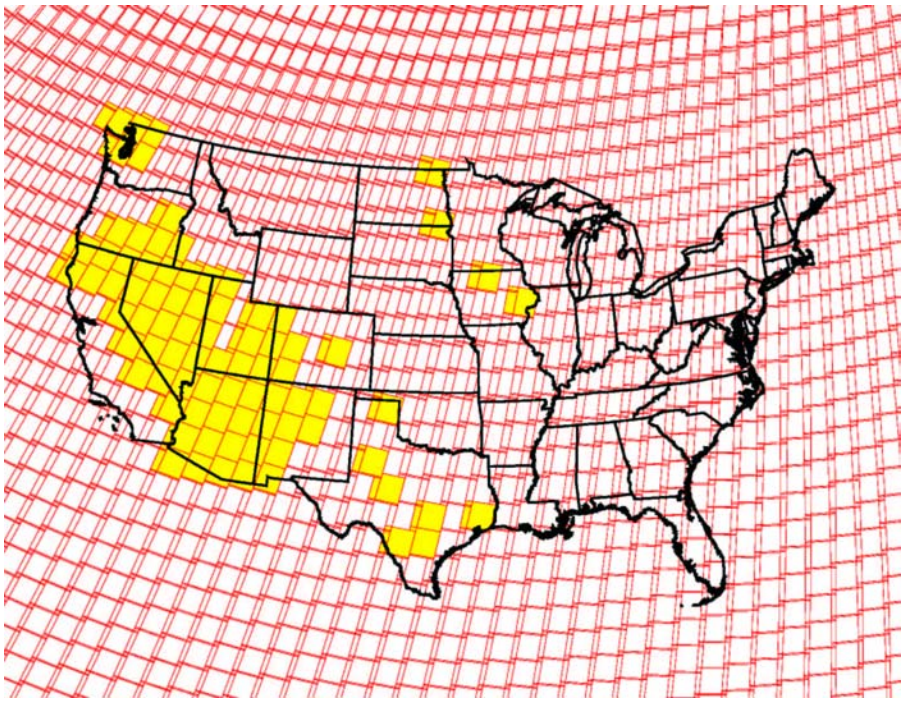
- Clips provided for
  - Indiana
  - 39 counties in Illinois
  - 12 parishes in LA
- Ongoing work for
  - Illinois
  - Wisconsin
  - Louisiana
- Operational production on hold until QA is completed and correct image dates are verified



Part 500 Scanning & Rectification

- Establishes policy for NRI photos and ancillary maps
- 9x9 scan at 600 dpi
- Procedures for calculating dpi for non standard photos
- Standard file naming using USDA specs.
- Rectification base is NDOP DOQQ
- Orthorectification required on PSUs with >20 meters of relief
- UTM, NAD83
- RMSE of 2 or less
- Allows near-lossless image compression

FY 2002 FAS Landsat Scenes



AREA	PROJECT	SCENES
Colorado	Tamarisk Mapping	4
Washington	NRI	8
Oregon	County Base	20
Iowa	Flood Mapping	3
Arizona	State Coverage	25
Nevada	State Coverage	28
California	Klamath River	13
New Mexico	Juniper Mapping	4
Utah	Wetland Change	7
North Dakota	Irrigation	2
Texas	Irrigation Survey	111
Texas	Flood Mapping	4
CO, TX, NV	IT Conference	4
TOTAL		233